**Name: Period: Date:**

**Part 2 – RNA, Transcription, Translation**

**RNA**

Go to http://www.dnaftb.org/dnaftb/21/concept/index.html

Read the text and answer the following questions

1. Where is RNA commonly found? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Describe what is meant by the “central dogma” in biology.

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3. Name the 3 types of RNA and the general roles they play in the making of protein.

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**Click on the animation button below. Step through the animation and compare and contrast the structure of**

**RNA to DNA. Make a Venn diagram to compare and contrast. Then do a sketch of an RNA molecule (at**

**least 10 nucleotides long using the all the appropriate bases at least twice).**

DNA RNA Venn Diagram

RNA Sketch (at least 10 nucleotides long with appropriate nitrogen bases)

**Transcription (DNA** 🡪 **RNA)**

Go to http://www.stolaf.edu/people/giannini/flashanimat/molgenetics/transcription.swf

Answer the following questions as you move through the animation of Transcription

**Before clicking**

1. The diagram represents what type of molecule? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Click once**

2. What type of molecule is the RNA polymerase? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Click again**

3. What function does the RNA polymerase have? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Where in the cell do you think this is taking place? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Explain how the mRNA molecule forms.

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**Go to the DNAi website: http://www.dnai.org/a/index.html**

**Click on “Copying the Code” at the bottom of the page, then click on “putting it together” at the top of the**

**new page. Select “transcription”. Watch the animation**

1. What does the blue molecule do? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. What is the yellow chain? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. What is T replaced with in RNA? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Translation (mRNA** 🡪 **protein)**

Go to http://www.stolaf.edu/people/giannini/flashanimat/molgenetics/translation.swf

Answer the following questions as you move through the animation of Translation

**Before clicking**

1. The diagram represents what type of molecule? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Click once**

2. Where in cell in this taking place? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Click again**

3. What type of molecule is the tRNA (transfer RNA) bringing to the mRNA? \_\_\_\_\_\_\_\_\_\_\_\_\_

4. Explain (in terms of nitrogen bases) how the tRNA docks on the mRNA ?

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**Click until the end watching the process of translation**

5. As the tRNAs dock on the mRNA bringing amino acids with them what type of molecule is created

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Start the animation over**

6. What are the 3 nitrogen bases on the tRNA carrying the amino acid “Met”? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. What are the 3 nitrogen bases on the mRNA that the “Met”-tRNA docks upon? \_\_\_\_\_\_\_\_\_\_\_

8. Check out the next tRNA with its 3 nitrogen bases and see where it docks on the mRNA. Can you detect a

pattern. If there are 20 amino acids then what is the minimum number of tRNAs that must exist.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Go to the DNAi website: http://www.dnai.org/a/index.html**

**Click on “Reading the Code” at the bottom of the page, then click on “putting it together” at the top of the**

**new page. Select “interactive”.**

9. Practice translation using the computer animation, and write down the final amino acid sequence here:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_